

REMARKS

The Office Action dated March 22, 2005 has been carefully considered. Claims 1, 3-7, 9-17, 19, 22, 24-28, 30-40, 43, 44, 48, 55, 56, 60, 63, 64, 67, 69, 71, 74, 77, 80, 82, 83, 86, 87, 89, 91, and 93 have been amended. Claims 2 and 23 have been canceled. Claims 1, 3-22 and 24-94 are in this application.

Support for claims 1-94 is found throughout the specification, and in particular at page 6, line 27 through page 7, line 21. No new matter has been entered.

The previously presented claims were rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter. The Examiner indicated that the claims were being directed to data with no particular information.

The Applicant agrees with the Examiner that 35 U.S.C. § 101 of the patent law reads "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." The Applicant, however, is puzzled by the Examiner's statement that the claimed invention is directed to non-statutory subject matter because the claims do not show how the processor carries out data processing.

It is well known that, over time, the courts have expanded the interpretation of 35 U.S.C. § 101, recognizing the growing importance and integral nature of software.¹

In *In re Alappat*², in 1994, the Federal Circuit held that data mathematically transformed by a machine to produce a smooth waveform on a display constituted a patentable application of an abstract idea because it produced a "useful, concrete and tangible result"—the smooth waveform. And in 1992, in *Arythmia Research Technology Inc. v. Corazonix Corp.*³, the court held that the mathematical transformation of electrocardiograph signals from a patient's heartbeat in order to determine the condition of the patient's heart constituted patentable subject matter.

¹ See *Diamond v. Diehr*, 450 U.S. 175, 182, 101 S.Ct. 1048, 67 L.Ed.2d 155 (1981); *Parker v. Flook*, 437 U.S. 584, 98 S.Ct. 2522, 57 L.Ed.2d 451 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 93 S.Ct. 253, 34 L.Ed.2d 273 (1972); and *In re Alappat*, 33 F.3d 1526, 1540-41, 31 USPQ2d 1545, 1554 (Fed. Cir. 1994) (in banc).

² *In re Alappat*, 33 F.3d 1526 (Fed. Cir. 1994)

³ *Arythmia Research Technology Inc. v. Corazonix Corp.*, 958 F.2d 1053

In *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, a mathematical algorithm that produces numbers as its only output, was classified as constituting patentable subject matter if it produces a result that is "useful, concrete and tangible."⁴

On January 11, 1999, the Supreme Court⁵ left intact the decision of the Federal Circuit Court in *State Street Bank*, which held that a computer system designed to implement an investment structure is patentable. The Federal Circuit Court reversed a ruling by the U.S. District Court for the District of Massachusetts⁶ holding invalid as unpatentable U.S. Patent No. 5,193,056, entitled "Data Processing System for Hub and Spoke Financial Services Configuration," a system that facilitates the pooling of mutual funds assets in an investment portfolio organized as a partnership.

In reversing the District Court's decision, the Federal Circuit stated that *while mathematical algorithms are not patentable subject matter to the extent that they are merely abstract ideas, "the transformation of data, representing discrete dollar amounts, by a machine, through a series of mathematical calculations, resulting in a final share price constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces a 'useful, concrete and tangible result'—a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities in subsequent trades."* As a result of the decision, a digital processing system "is statutory subject matter, even if the useful result is expressed in numbers, such as price, profit, percentage, cost, or loss."

Applicants submit that the present amended claims 1 and 22 are directed to a method and system for permuting two dimensional data in which two dimensional data is decomposed into at least one atomic element, the two dimensional data being located in at least one source register. The at least one atomic element of the two dimensional data is a 2x2 matrix and the two dimensional data is decomposed into data elements in the matrix. At least one permutation instruction is determined for rearrangement of the data in the atomic element. The data elements being rearranged by the at least one permutation instruction. Each of the data elements represent

⁴ *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368 (Fed. Cir. 1998)

⁵ *Cert. denied* January 11, 1999

⁶ *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 927 F. Supp. 502, 515 (D. Mass 1996)

a subword having one or more bits. The permutation instructions are applied to the subwords and permutation subwords are placed into a designation register.

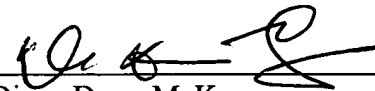
Additional claims are directed to a method and system for performing subword permutation having similar features.

As the claimed invention is directed towards statutory subject matter, Applicants respectfully request withdrawal of the rejection under 35 U.S.C. § 101.

In view of the foregoing, Applicants submit that all pending claims are in condition for allowance and request that all claims be allowed. The Examiner is invited to contact the undersigned should he believe that this would expedite prosecution of this application. It is believed that no fee is required. The Commissioner is authorized to charge any deficiency or credit any overpayment to Deposit Account No. 13-2165.

Respectfully submitted,

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